23704

S/035/61/000/004/035/058
A001/A101

The application of atomic collision theory ...

where $Q_0 = 0.1651\Pi a^2$ (a is radius of the first Bohr orbit), $C = 1,280$ ev. Bydin and Bukhteyev carried out experimental investigations on dependence of Q_1 on v for K atoms colliding with argon atoms and molecules of N_2, O_2, H_2. In the case of collision with N_2 the relation can be approximated by parabola:

$$Q_1 = const \sqrt{E}. \tag{3}$$

On substitution of (2) and (3) into (1) we obtain:

$$\beta \approx const \left\{ \frac{\left(\frac{E}{C}\right)^{1/2}}{\ln\left(\frac{E}{C}\right)} - \frac{\left(\frac{E_i}{C}\right)^{1/2}}{\ln\left(\frac{E_i}{C}\right)} + \right.$$

$$\left. + \frac{1}{2}\left[Ei\left(\frac{1}{2}\ln\frac{E_i}{C}\right) - Ei\left(\frac{1}{2}\ln\frac{E}{C}\right)\right]\right\}. \tag{4}$$

According to (4), v-dependence of can not be strong. Expression (1) can lead to a strong v-dependence of β only if exists a strong v-dependence of Q_1 which is not confirmed either by direct measurements or by quantum-mechanical calculations. There are 10 references.

V. Lebedinets

[Abstracter's note: Complete translation]

Card 2/2

41295
S/035/62/000/010/054/128
A001/A101

3.2440

AUTHOR: Loshchilov, Yu. A.

TITLE: On the initial radius of a meteoric trail

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 10, 1962,
               64 - 65, abstract 10A457. ("Tr. Gorodsk. astron. observ.
               Kazansk. un-ta", 1961, no. 33, 70 - 74, English summary)

TEXT: Atoms evaporating from the surface of a meteoric body have speeds
considerably exceeding those of molecules of the atmosphere; therefore, a rapid
initial expansion of the meteoric trail takes place prior to establishing a
thermal equilibrium. Initial expansion is considered as a result of usual dif-
fusion characterized by the average diffusion coefficient $D = \frac{1}{3}\lambda \bar{v}$, where λ
is average free path length, and $\bar{v}$ is average speed of meteor atoms during
the period of establishing a thermal equilibrium with the atmosphere. Bearing
in mind the dependence of atom diffusion cross section Q_d on energy E,

$$Q_d (E) = 0,165\pi a^2 \left(\ln \frac{c}{E} \right)^2,$$

Card 1/3

On the initial radius of a meteoric trail

where a is radius of Bohr's first orbit and $c = 12,800$ ev, the author derives
the following expressions for the time of establishing thermal equilibrium
t_o and initial radius of a trail R_o:

$$t_o = \frac{(2M)^{1/2}}{n_a \, Q_d \, c^{1/2}} \left[\frac{\left(\frac{c}{E_1}\right)^{1/2}}{\ln \frac{c}{E_1}} - \frac{\left(\frac{c}{E_o}\right)^{1/2}}{\ln \frac{c}{E_o}} + \right.$$

$$\left. + \frac{1}{2} \left\{ Ei\left(\frac{1}{2} \ln \frac{c}{E_o}\right) - Ei\left(\frac{1}{2} \ln \frac{c}{E_1}\right) \right\} \right],$$

$$R_o \approx \left(\frac{4 Q_d}{\sqrt{3} \, Q^o \, \ln \frac{c}{E_1} \sqrt{\ln \frac{E_1}{E_o}}} \right) + 1 \; \lambda a,$$

Card 2/3

On the initial radius of a meteoric trail

S/035/62/000/010/054/128
A001/A101

where M is mass of a meteor atom, E_1 its initial energy, E_0 average energy of atmospheric molecules, n_a is concentration of atmospheric molecules, $Q_d^0 = 0.165\pi a^2$, E_1 is an integral exponential function, λ_a is free path length of atmospheric molecules. For a meteor from the Geminid stream at an altitude of 94 km, the following values are obtained: $R_0 \approx 179$ cm, and $t_0 \sim 10^{-4}$ sec. The initial radius of the ionic part of the trail is less than atomic, because the ion initial energy is lower than that of neutral atoms. There are 6 references.

V. Lebedinets

[Abstracter's note: Complete translation]

Card 3/3

LOSHCHILOVA, V.G., dots.

Magnesium sulphate as an antidote in fluorine intoxication.
Veterinariia 36 no.12:48-49 D '59.   (MIRA 13:3)

1.Kirovskiy sel'skokhozyaystvennyy institut.
        (Magnesium sulphate) (Fluorine—Toxicology)

LOSHCHININ, A.

Following the path indicated by the party. Okhr.truda i sots.strakh. no.4:
19-22 0 '58.
(MIRA 12:1)

1. Zaveduyushchiy otdelom okhrany truda TSentral'nogo Komiteta
profsoyuza rabochikh zheleznodorozhnogo transporta.
(Railroads--Safety measures) (Industrial safety)

IOSHCHININ, A.

Under the flying banner of the seven-year plan. Okh. truda i sots. strakh. no.6:3-6 Je '59.   (MIRA 12:10)

1.Zaveduyushchiy otdelom okhrany truda TSentral'nogo komiteta profso- za rabochikh zheleznodorozhnogo transporta.
                (Railroads) (Industrial hygiene)

LOSHCHININ, A.

Changes for the good. Okhr. truda i sots. strakh. 3 no.9:34-36
'S '60.   (MIRA 14:4)

1. Zaveduyushchiy otdelom okhrany truda Tsentral'nogo komiteta
profsoyuza rabochikh zheleznodorozhnogo transporta.
                (Railroads—Safety measures)

LOSHCHININ, A.

On solidarity. Okhr.truda i sots.strakh. 4 no.12:43-44 D '61.
(MIRA 14:11)

1. Zaveduyushchiy otdelom okhrany truda TSentral'nogo komiteta
profsoyuza rabochikh zheleznodorozhnogo transporta.
(Transport workers--Congresses)

LOSHCHININ, A.V.

Improve the working conditions of construction workers. Transp. stroi. 6 no.1:5-8 Ja '56.

(MLRA 9:5)

1. Zaveduyushchiy otdelom okhrany truda TSentral'nogo komiteta profsoyuza rabochikh zheleznodorozhnogo transporta.
(Construction workers)

LOSHCHININ, A.V.

Publicizing safety engineering. Zhel.dor.transp. 42 no.5:
78-79 My '60.   (MIRA 13:9)

1. Zaveduyushchiy otdelom okhrany truda TSentral'nogo komiteta
profsoyuza rabochikh zheleznodorozhnogo transporta.
                (Railroads--Safety measures)

LOSHCHININ, Boris Vasil'yevich; TARASOVA, K.A., red.; YUNISOVA, M.I.,
    tekhn. red.

[Currants]Smorodina. Gor'kii, Gor'kovskoe knizhnoe izd-vo, 1961.
                                             (MIRA 16:2)
87 p.   (Currants)

LOSHCHININ, P.YE.

28197

A simptotichyeskoye znachyeniye summy E $Sh^{k1}h^{k2}K^{kr}r$. Doklady akad. nauk. UzSSR, 1949, No. 7, s. 3-7

SO. LETOPIS NO. 34

AUTHOR: Loshchinin, P. Ye.

TITLE: Production control based on the theorem on the testing of hypotheses

PERIODICAL: Referativnyy zhurnal, Matematika, no. 9, 1962, 16, abstract 9V73
               ("Tr. In-ta matem. AN UzSSR", 1961, no. 22, 83 - 90)

TEXT: Let $\varphi(p)$ be an unknown probability density function continuous in
the interval $[0, 1]$ of the machine-tool setting for any ratio of acceptable ar-
ticles p, $q_0 = 1 - p_0$ being the admissible spoilage ratio. The hypotheses

$$H_0 : p \geqslant p_0 \quad \text{and} \quad H_1 : p < p_0$$

are tested where

$$P(H_0) = \int_{p_0}^{1} \varphi(p)dp = \alpha_0, \quad P(H_1) = \int_{0}^{p_0} \varphi(p)dp = \alpha_1,$$

$$\alpha_0 + \alpha_1 = 1$$

are considered to be known. For a specified reliability not less than $1-\alpha_4$ the

Card 1/2

Production control based on...

s/044/62/000/009/035/069
A060/A000

lower bounds are found for the number n of required tests in two cases: 1) in all the n tests the articles turned out to be acceptable; 2) in n tests one part is defective.

V. A. Kolemayev

[Abstracter's note: Complete translation]

Card 2/2

88864

S/044/60/000/007/018/058
C111/C222

/6.3400

AUTHOR: Loshchinin, V.S.

TITLE: On the existence and uniqueness of the periodic solution of
            the differential equation $y' = f(x,y)$

PERIODICAL: Referativnyy zhurnal. Matematika, no.7, 1960, 87.
            Abstract no.7578. Uch zap.Ryazansk.gos.ped.in-ta, 1956, 13,
            328-334

TEXT: The author proves the existence and uniqueness of the periodic
solution of the differential equation $y' = f(x,y)$ in a certain strip
$x \geqslant 0$, $a \leqslant y \leqslant b$ under more general assumptions than S,A.Samedova (R.zh.
Mat., 1960, 330). Especially the author assumes that an infinite set
of integral curves can pass through an arbitrary point of the strip.
Furthermore it is proved that for an increasing x every solution $y = y(x)$
of the differential equation $y' = f(x,y)$ approximates the periodic
solution.

[Abstracter's note: The above text is a full translation of the original
Soviet abstract.]

Card 1/1

LOSHCHININ, V.S., Cand Phys-Math Sci —(diss) " Asymptotic pro-

cedure of solutions of $\not{A}$ differential equation $v^{1}-f$ (x,y) as a

whole." Mos, 1958. 7 pp (Min of Education RSFSR. Mos Oblast Peda-

gogical Inst im N.K.Krupskaya). 120 copies. Bibliography pp 6-7.

(KL, 20-58, 92)

-10-

IOSHCHININ, V.S.

Certain problems in the asymptotic behavior of integral curves of equations of the first order on the whole. Uch.zap.RGPI 15:77-82 '58.
(MIRA 12:7)

(Differential equations)

LOSHCHININ, V.S.

Horizontal and vertical asymptotes of solutions of first-order
equations. Uch.zap.RGPI 15:83-87   '58.   (MIRA 12:7)
              (Differential equations)

26624

AUTHOR: Loshchinin, V.S.

S/044/60/000/002/001/009
C111/C222

TITLE: On the conditions for the entering of the solutions of the equation y' = f(x,y) in the strip of stability

PERIODICAL: Referativnyy zhurnal. Matematika, no. 2, 1960, 84, abstract 1630. (Uch. zap. Balashovsk. gos. ped. in-ta, 1958,3, 3 - 6)

TEXT: The series of articles is devoted to the qualitative investigation of the differential equation

$$y' = f(x,y) \qquad (1)$$

in the large. With the aid of the methods of N.N. Luzin (Matem. sb., 1932, 39, no. 3, 6 - 26) the author obtains the results of S.A. Samedov (Tr. In-ta fiz. i matem. AN Azerb SSR. Ser. matem., 1953, 6, 25-39) under more general assumptions on the right-hand side of the equation (1).

Let 1) $f(x,y)$ be defined and continuous in every point of the (x,y)-plane;   2) $f(x,y) < 0$ for $y > M$, $f(x,y) > 0$ for $y < m$, where M and m are certain numbers $(m \leq M)$;   3) the number m cannot be enlarged and M

Card 1/3

cannot be diminished without disturbing 2). The strip $-\infty < x < +\infty$, $m \leq y \leq M$ is called the strip of stability as by N.N. Luzin.

The author proves the theorem : Let $f(x,y)$ satisfy the conditions 1) - 3) and besides the inequality $|f(x,y)| \geq \dfrac{F(x)}{\psi(y)}$ for all $y \in [m,M]$ and $x \geq \zeta_0$, where ζ_0 is sufficiently large, where the positive function $\psi(y)$ is summable on every closed interval containing no points of (m,M), and $F(x)$ has the property that $\lim\limits_{x \to +\infty} \int_{x_0}^{x} F(x)dx = +\infty$ holds for every fixed $x_0 \geq \zeta_0$. Then during the course towards the right-hand side, for a certain x-value, every solution of (1) comes into the strip of stability and remains in it.

By a corresponding change of the conditions for the function $\psi(y)$ it is

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On the conditions for the entering ...

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C111/C222

proved that every integral curve of (1) enters in an ε -neighborhood of the strip of stability.

[Abstracter's note: Complete translation].

Card 3/3

16.3400

S/044/61/000/004/018/033
C111/C222

AUTHOR: Loshchinin, V.S.

TITLE: A qualitative investigation of the differential equation
of the motion of a machine aggregate for forces depending
on the situation and velocity of the term of reduction

PERIODICAL: Referativnyy zhurnal. Matematika, no. 4, 1961, 56,
abstract 4 B 279. ("Uch. zap. Balashovsk. gos.ped.in-t",
1959, 8, 5-20)

TEXT: The well-known differential equation of a machine aggregate

$$\frac{d}{d\varphi}\left[I\ \frac{\omega^2}{2}\right] = M_D - M_C$$

is transformed to the form

$$\frac{dT}{d\varphi} = f(\varphi, T) \qquad\qquad (1)$$

where T is the kinetic energy, $f(\varphi, T)$ is the reduced moment of the
acting forces. It is assumed that the reduced moments of the moving

Card 1/3

A qualitative investigation of the ...   S/044/61/000/004/018/033
C111/C222

forces M_D and the powers of resistance M_C are functions of the angular velocity ω and the angle of rotation φ of the term of reduction and that the reduced moment inertia I is a function of φ. With respect to the right-hand side of (1) it is assumed that it is continuous in the strip

$$-\infty < \varphi < \infty \quad , \quad 0 \leq T \leq T_{max} \; , \; f(\varphi, 0) > 0 \; , \quad f(\varphi, T_{max}) \leq 0 \quad ,$$

and that $\partial f / \partial T$ exists and is continuous. The solution of (1) is denoted as an energy integral of the motion of the machine aggregate. In virtue of his earlier papers (R zh Mat, 1960, 1632 ; Uch.zap. Ryazansk.gos. ped. in-ta, 1958, 15, 83-87) the author states : The energy integrals are continuable infinitely far to the right-hand side, there exist integrals being continuable infinitely far to the right-hand or left-hand side (absolutely continuable integrals), among them there exists an upper and a lower integral, two integrals approach for an increasing φ. Under the additional condition $\partial f / \partial T \leq - \lambda < 0$ it is proved that all energy integrals approach asymptotically, and that there exists a unique absolutely continuable energy integral describing the asymptotically
Card 2/3

A qualitative investigation of the ...   S/044/61/000/004/018/033
                                          C111/C222

stable (in the sense of Lyapunov) limit method of operation of the
aggregate. The estimation

$$n \geqslant E \left\{ \frac{1}{2 \kappa \lambda} \ln \frac{T_{max}}{\varepsilon} \right\}$$

is given for the number n of the revolutions of the term of reduction
from which the given solution distinguishes by less than ε from the
asymptotically stable limit method of operation. If all preceding
assumptions are satisfied, and if $f(\varphi, T)$ is periodic in φ then it
is proved that there exists a unique absolutely continuable energy
integral with the same period describing the asymptotically stable
limit method of operation of the aggregate. The author introduces the
notion of a quasi-stationary limit method of operation, i.e. of an
integral $T(\varphi)$ for which $T(\varphi) = a$ $(0 \leq a \leq T_{max})$. Sufficient conditions
for its existence and uniqueness are given. There are 12 references.

[Abstracter's note : Complete translation]

Card 3/3

1/E00/61/022/000/001/003
D234/D304

AUTHOR: Loshchinin, V.S.

TITLE: A qualitative investigation of the differential
               equation of motion of a machine assembly

SOURCE: Akademiya nauk SSSR. Institut mashinovedeniya.
               Seminar po teorii mashin i mekhanizmov. Trudy, v. 21,
               no. 82, Moscow, 1961, 5-25

TEXT: Introducing the kinetic energy T, the equation of
motion can be written as

$$\frac{dT}{dq} = L(q,T),\qquad\qquad (1)$$

where L is the reduced moment of the forces. The author assumes
that L is continuous and has a continuous derivative with respect
to T which is less than 0. It is also assumed that the kinetic

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3/506/61/022/003/001/000
D234/D304

A qualitative investigation...

energy of the assembly increases when it is equal to 0 and there is
a maximum kinetic energy of the assembly. The process of decrease
of the kinetic energy is not considered in the paper. From the
basic assumption it follows that there is a single-valued continu-
ous curve $T = \tau(\varphi)$ along which L is identically equal to 0, and
which is called the inertial curve. The author bases his research
on a paper by N.N. Luzin, Member of the Academy (Ref. 2: O bachit-
vennom issledovanii uravneniya dvizheniya poyezda, Inzber, sb. 39,
no. 3, 1952). The following theorems are established: 1) Every
integral of the equation of motion (2) can be continued indefinite-
ly to the right if the basic assumptions, given above, are fulfilled;
2) under the same basic assumptions, there exist absolutely continu-
ous integrals of the equation, and among them there is always an
upper one and a lower one, all the others being contained in the
strip between these two, and filling it. (The author mentions
that a particular case of upper and lower integrals was considered
by A. Gaichin and A. Halanay (Ref. 3: Univ. 'C.J. Parchon', Li poli-
techn. Bucuresti, 1959, no. 3)). 3) The distance between two arbit-

Card 2/4

A qualitative investigation...   S/508/61/022/003/001/003
                                         B254/B304

rary integrals decreases with the increase of the angle of rotation;
4) if there is a positive constant λ for which $\partial M/\partial T$ is less
than $-\lambda$, all energy integrals approach each other asymptotically
when φ tends to $+\infty$, regardless of the initial conditions deter-
mining these integrals; 5) under the conditions of the previous
theorem, there is a unique absolutely continuable integral T_0 which
constitutes an asymptotically stable limit regime of the assembly;
6) under the conditions of theorem 4, T_0 is wholly situated in the
strip between the maximum and minimum of the inertial curve (called
the strip of stability); 7) if M is periodical with respect to φ,
the equation of motion has a unique absolutely continuable integral
with the same period; 8) under the same conditions, the periodical
integral is the unique asymptotically stable limit regime of the
assembly; 9) if the basic conditions are satisfied, and the inertial
curve has a definite limit when φ tends to $+\infty$, any integral is
a quasistationary limit regime (i.e. has a definite limit when φ
tends to $+\infty$); 10) under the same conditions as in no. 9, and if
there is a positive λ such that $\partial M/\partial T$ is less than $-\lambda$, the

Card 3/4

A qualitative investigation...   S/536/61/022/008/001/003
                                        D234/D304

inertial curve will be an asymptotically stable quasi-stationary
limit of the assembly. There are 3 figures and 12 Soviet-bloc
references.

SUBMITTED: May 19, 1959

Card 4/4

LOSHCHININ, V.S.

Finding periodic ultimate conditions for the movement of a machine unit. Trudy Inst.mash.Sem.po teor.mash.i mekh. 23 no.91:4-24 '62.   (MIRA 15:9)

(Machinery, Kinematics of)

shchinin, V. S.

The search for an asymptotically stable limiting condition of motion of a machine aggregate

SOURCE: Uch. zap. Balashovsk. gos. ped. in-t, v. 1, 1963

motion condition, angular

TRANSLATION: The author considers the solution of the differential equation of a link of a machine aggregate for the case when the motive forces and

ACCESSION NR: AR5006732

... ... motion of the machine aggregate. An iterative process is presented.
... ...

immediately on an entire interval of change in the angular position of the reduc
... for each choice of initial conditions. The method present d is based o
... ...

L 39450-65   AWT(d)   Pg-4   IJP(c)

ACCESSION NR: AR5006730   S/0044/64/000/012/B035/B035

SOURCE: Ref. zh. Matematika, Abs. 12B201

AUTHOR: Loshchinin, V. S.

TITLE: Periodic solution of Riccati's equation

CITED SOURCE: Uch. zap. Balashovsk. gos. ped. in-t, v. 10, 1963, 41-50

TOPIC TAGS: differential equation, Riccati equation, approximation, periodic
solution

TRANSLATION: The equation

$$ y' = a(x) y^2 + b(x) y + c(x) $$

is investigated, where the equation has continuous and real coefficients for all
x having period ω. Assuming that a (k) > 0, the right hand side can be expressed
as the real product $y = a (x) y + r (x) + c(x)$

Card 1/2

L 39-30-65

ACCESSION NR: AR5006730

     show that, in this case, there exist no distinct periodic solutions $y(x)$ and $y^*(x)$ so that $m_1 < y, (x) < M; m_1 < y^* (x) <$

     ...tions outside the region $y, y^*(x)$ for $x \longrightarrow \infty$ asymptotically approxi-
     ... and all solutions outside the region ... for $x \longrightarrow \infty$ asymptoti-
     ...approximate $y^*(x)$. I. Sobol

     MA

Card 2/2

The problem of finding periodic solutions of the Riccati equation

TAGS: periodic function, Riccati equation, differential equation, approximation, iteration

TRANSLATION: It is assumed that the conditions of the previous work of the author (abstract 12B201) are fulfilled. Fix a constant $\lambda_2 > 0$ so that, for

$$m_1 \leq y \leq M_1 \qquad\qquad -\lambda_2 \cdot 2a(x)\,y + b(x).$$

If we select an arbitrary continuous function $y_0(x)$, with period ω, lying in the strip $m_1 \leq y_0(x) \leq M_1$, then the sequence of approximations defined by the formula

$$y_{n+1}(x) = \frac{e^{-\lambda_2 x}}{\cdots} \int \cdots \lambda_2 x \left[a y_n^2 + b y_n - c - \lambda_2 y_n \right]\, dt .$$

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N NR.   AK5006731

converge to y_* (x).   I. Sobol'.

SUB CODE: MA   ENCL: 00

Card   2/2

LOSHCHININ, V.S., kand. fiz.-matem. nauk, dotsent

Finding an asymptotically stable limiting pattern of motion
of a machine aggregate. Uch. zap. Bal. gos. ped. inst. 10:
5-19 '63.   (MIRA 18:10)

LOSHCHININ, V.S., kand. fiz.-matem. nauk, dotsent

Periodic solutions to Riccati's equation. Uch. zap. Bal. gos.
ped. inst. 10:41-50 '63.   (MIRA 18:10)

LOSHCHININ, W.S., kand. fiz.-matem. nauk, dotsent

Finding periodic solutions to Riccati's equation. Uch. zap.
Bal. gos. ped. inst. 10:51-63 '63.   (MIRA 18:10)

MANVELYAN, V.P.; NIKIFOROVA, I.I.; SMOLINA, M.G.; IOFFE, N.M.; LOSHCHILINA, G.A.; GOLOVANOVA, N.A.

Fiber dyeing and artificial fur finishin. Nauch.-issl. trudy VNIITP no. 5:135-166 '64   (MIRA 19:1)

LOSHCHIMI , G. P.

LOSHCHIMI , G. P.: "Overcharging in the electrolytic isolation of hydrogen
and oxygen using galvanic nickel-cobalt alloys in alkaline solution."
Tashkent, 1955. Publishing house of the Acad Sci Uzbek SSR. Inst of
Chemistry, Acad Sci Uzbek SSR. Tashkent State Medical Inst imeni V. M.
Molotov. (Dissertation for the Degree of Candidate of Chemical Sciences)

SO: Knizhnaya Letopis' No. 47, 19 November 1955. Moscow.

Lоshchinina, нA,G F.

USSR/Electrochemistry   B-12

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26311

Author   : G.P. Loshchinina, B.N. Kabanov, A.M. Murtazayev.
Inst   : Academy of Sciences of Uzbek SSR.
Title   : Cathode Behavior of Electroplating Alloy Ni-Co in Alkali So-
           lutions at High Current Densities.

Orig Pub : Dokl. AN UzSSR, 1956, No 8, 17-22.

Abstract : The cathode behavior of the electroplating alloy of Ni and Co
           containing 11.8% of Co was studied in 3 n. KOH at i from 1×10^{-4}
           to 0.3 a per sq. cm by the method of taking the curves of the
           H overvoltage (η) and by measuring the capacity (C) of the
           double electrical alyer by an alternating current (10^4 cycles).
           It is shown that the slope factor (b) of curves (η , log i)
           equals from 0.115 to 0.14 v in a hydrogen atmosphere, as well
           as in an oxygen atmosphere at a low i, and that C diminishes
           with time, b increases up to 0.250 v. The authors suppose
           that the slow adsorption of hydrogen is the cause of the
           slow increase of η accompanied by an insignificant alteration
           of C.

Card   : 1/1

137-58-6-12078

, Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 128 (USSR)

AUTHORS·   Loshchinina, G.P., Murtazayev, A.M.

TITLE: The Effect of Temperature on Excess Hydrogen Voltage in Gal-
            vanic Ni-Co Alloys in Alkaline Solutions (Temperaturnaya zav-
            isimost' vodorodnogo perenapryazheniya na gal'vanicheskikh
            splavakh nikel'-kobal't v rastvorakh shchelochi)

PERIODICAL· UzSSR Fanlar Akad. dokladlari, Dokl. AN UzSSR, 1957, Nr
             12, pp 35-39

ABSTRACT: The authors present experimental data showing the relation-
            ship between the excess hydrogen voltage and the temperature
            of the electrolyte. Polarographic curves of excess hydrogen
            voltage were taken at four different temperatures: 75, 60, 40,
            and 20°C. Current densities in 0.3-N KOH were limited to the
            interval from 1×10^{-2} to 1×10^{-4} a/cm^2, whereas in 7-N KOH
            they ranged from 3×10^{-1} to 1×10^{-4} a/cm^2. Measurements were
            conducted on: 1) fresh specimens which were replaced as the
            temperature increased, and 2) on a single specimen which re-
            mained in the same electrolyte throughout the experiment. In
Card 1/2   order to study the effect of temperature on the excess hydrogen

137-58-6-12078

The Effect of Temperature on Excess Hydrogen Voltage (cont.)

voltage (in 7-N and 0.3-N KOH), η_i -vs.-log H_2 curves were taken on the same specimen starting at a temperature of 75°. The current densities were gradually reduced until the values of η_{H_2} became constant for every current density. In the case of certain alloys subjected to such conditions at current densities ranging from 1×10^{-2} to 3×10^{-1} a/cm^2, the sections of the η_i - log H_2 curves corresponding to 20° in 7-N KOH exhibit an inclination of 0.18-0.20 v and are not parallel to the analogous sections of the curves obtained at higher temperatures. At current densities of less than 10 ma/cm^{-2} (1×10^{-2} to 1×10^{-4} a/cm^2) the temperature coefficients essentially comply with the theoretical relationship: $(d\eta/dt)_1$ - da/dt+ R log $1/\alpha$ F. In case of alloys rich in Ni, the temperature coefficients are close to 2.0-3.0 mv/degree C and in the case of Co-rich alloys, close to 1.8 mv/deg. Highest temperature coefficients in the range of large current densities are exhibited by alloys with 8-12% of Co, as well as by those with 63.5% of Co.

G.S.

1. Electrolytes--Electrical factors   2. Voltage--Temperature factors
3. Alkaline solutions--Properties   4. Copper-nickel alloys--Electrolysis

Card 2/2

AUTHORS: Loshchinina, G. P. , Murtazayev, A. M.

TITLE: Effect of the Composition of Electrolytic Nickel-cobalt Alloys on the
Hydrogen Overvoltage in Alkaline Solutions (Vliyaniye sostava gal' -
vanicheskikh splavov nikel'-kobal't na vodorodnoye perenapryazheniye
v rastvorakh shchelochi)

ABSTRACT: An investigation was performed on the relationship of the H over-
voltage in 7N KOH to the composition of electrolytically deposited
Ni-Co alloy (EA). H overvoltage on electrolytic Ni is greater than
on Co. With the increase of Co >54% the H overvoltage on the EA
decreases. With a high cathode cd $(1.3 \cdot 10^{-1}$ amp/cm^2) a maximum
is observed on the alloy-composition vs. overvoltage curve at 5-12%
Co in the EA, and the overvoltage is greater than on Ni. A comparison
was made with data on the H overvoltage on thermic alloys obtained
from literature sources. The change in the H overvoltage is analogous
to the change in composition in alloys containing 50-60% Co and inverse
in alloys containing >60-64% Co, because on thermic alloys H

Card 1/2

SOV/137-58-11-23149

Effect of the Composition of Electrolytic Nickel-cobalt Alloys (cont.)

overvoltage increases.   The authors express the hypothesis that the cause of the appearance of maxima and minima on the composition-vs.-overvoltage curve is related to the structure of the alloys.   The cause of the decrease in the H over-voltage on the EA is explained by changes in the structure and the state of the surface.

N. K.

Card 2/2

LOSHCHININA, G.P.; MURTAZAYEV, A.M.

Oxygen overvoltage on galvanic nickel-cobalt alloys in alkaline
solutions. Dokl. AN Uz.SSR no.7:31-35 '58.   (MIRA 11:10)

1. Tashkentskiy farmatsevticheskiy institut. Predstavleno
akademikom AN UzSSR S.Yu.Yunusovym.
     (Cobalt- ickel alloys) (Oxygen) (Electrolysis)

LOSHCHININA, G.P.; MURTAZAYEV, A.M.

Effect of certain cations on hydrogen and oxygen overvoltage   in
alkaline solutions. Dokl.AN Uz.SSR no.11:37-39 '58.
                                    (MIRA 11:12)

1. Tashkentskiy farmatsevticheskiy institut. Predstavleno akademikom
AN UzSSR S.Yu.Yunusovym.
                    (Overvoltage)

KOROL'KOV, N.V.; LOSHCHILOVA, L.I.; CHEPELEVSKAYA, I.I.

Introducing equipment for processing chemical rope fibers.
Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekh.inform.
18 no.4:44-47 Ap '65.   (MIRA 18:6)

SOV/110-58-7-12/21

AUTHOR: Lebedev, G.P., Engineer, and Loshchinina, N.I., Engineer.

TITLE: Frame-type elements for oscillograph MPO2. (Ramochnyye vibratory k ostsillografu tipa MPO2.)

PERIODICAL: Vestnik Elektropromyshlennosti, 1958, Nr 7 pp 41-42 (USSR)

ABSTRACT: The frequency characteristics of the usual oscillograph elements type MOV2 are given. Even the most sensitive of these requires a current of 1 mA to deflect the light spot across half the film width, so that amplifiers are sometimes required. New elements types MOV2-9 and-10 have the following characteristics:

	MOV2-9	MOV2-10
Sensitivity mm/mA.metre	250	1000
Natural frequency in air, c/s	400	200
Internal resistance, ohms	55	55
Permissible current amplitude, mA	1.0	0.25

The construction of the elements is illustrated in Fig. 1 and briefly described. The resistance of these elements

Card 1/2

Frame-type elements for oscillograph MP02.   SOV/110-58-7-12/21

to vibration is not very good, moreover they have somewhat
anomolous frequency characteristics with marked variations
in sensitivity in particular ranges of frequency. The
frequency characteristics of elements with a natural
frequency in air of 200 c/s short-circuited on a low external
resistance are given in Fig. 3. Curves 1 & 3 relate to
elements that are badly balanced and Curve 2 to an element
with a carefully balanced frame. Vibrations of the frame
caused by internal vibrations in the oscillograph can be
damped by immersing the elements in liquid, which also damps
forced oscillations. Changes in frequency characteristics
as functions of external impedance are shown in Fig. 3. Amp-
litude/frequency characteristics of a frame-type element
taken at various temperatures are given in Fig. 4. If the
Card 2/2 temperature is raised by 10°C the frequency characteristics
         rises by 4 - 18%. There are 4 figures.

SUBMITTED: November 1, 1957.

    1. Oscillographs--Design   2. Oscillographs--Performance

ITSKOVICH, E.L., inzhener;   LOSHCHINSKAYA, A.V., inzhener;   MIKHAYLOV,
      S.P., inzhener.

Gas sampling device for OED-49 and GEUK-21 gas analyzers.
TSement 22 no.3:17-19 My-Je '56.   (MLRA 9:8)
            (Gases--Analysis) (Waste products)

ITSKOVICH, Emmanuil L'vovich, LOSHCHINSKAYA, Anna Valer'yanovna,; LEONTENKOV,
A.I., nauchnyy red.; TYUTYUNIK, M.S., red.; GILENSON, P.G., tekhn. red.

[Automatic control in the burning of cement clinker] Avtomaticheskii
kontrol' obzhiga tsementnogo klinkera. Moskva, Gos. izd-vo lit-ry
po stroit., arkhit. i stroit. materialam, 1958. 48 p. (MIRA 11:10)
                        (Cement kilns)
                     (Automatic control)

AUTHORS: Itskovich, E. L. and Loshchinskaya, A. V.   101-58-3-2/12

TITLE: Graduation of Gas Analyzers on CO_2 Based on the Measurement of
              Heat Conductivity of the Mixture, for Rotary Furnaces
              (Graduirovka gazoanalizatorov na CO_2, osnovannykh na izmerenii
              teploprovodnosti smesi, dlya vrashchayushcheysya pechi)

PERIODICAL: Tsement, 1958, Nr 3, pp 1-6 (USSR)

ABSTRACT: The article deals with the use of electrical gas analyzers of
              the GED-49 and GEUK-21 type to analyze waste gases from cement
              roasting rotary furnaces. They operate on the basis of measuring
              the heat conductivity of gas mixtures and require an adjustment
              in the graduation if used for determining the CO_2 content in
              waste gases from rotary furnaces. To carry out such alterations,
              a testing arrangement is recommended as shown in diagram 4.
              There are 2 diagrams, 1 table, 2 graphs and 1 Soviet reference.

              1. Gas--Waste--Analysis   2. Gas analyzers--Applications   3. Gas
Card 1/1   analyzers--Operation

ZADYUZHKO, I.K.; LOSHCHINSKAYA, A.V.

Automation of the process of burning clinker. TSement 28 no.3:3-7
My-Je '62.   (MIRA 15:7)

1. Sebryakovskiy zavod (for Zadyuzhko). 2. Trest "Sevzapmontazh-
avtomatika" (for Loshchinskaya).
                    (Sebryakovo--Kilns, Rotary)
                        (Automation)

LOSHCHITS, M.F., polkovnik; ALESHIN, S.D., polkovnik; ASTASHENKOV,
P.T., inzh.-polkovnik; ISACHENKO, S.M., polkovnik;
SIDEL'NIKOV, I.I., polkovnik; SHVANKOV, N.P., polkovnik;
NOVIKOV, M.B., kapitan 2 ranga; TOMKOV, A.A., red.;
KONOVALOVA, Ye.K., tekhn. red.

[Heroes and exploits]Geroi i podvigi. Moskva, Voenizdat,
1963. 370 p.   (MIRA 16:3)
          (Heroes)

LOSHENFEL'D, R.A.

Hemorrhage into the urinary bladder during labor. Akush. i gin.
no.2:143-144 '65.   (MIRA 18:10)

1. Rodil'nyy dom No.1 (glavnyy vrach S.S.Yermolova, zaveduyushchiy
otdeleniyem R.A.Loshenfel'd, nauchnyy konsul'tant - prof. P.Ya.
Lel'chuk), Rostov-na-Donu.

LOSHEN'KOV, V., kinoradiomekhanik (Bobruysk).

Supply paraffin for motion-picture projectors. Kinomekhanik no.11:35 N '53.
(MLRA 6:11)
(Moving-picture projectors)

LOSHILOVA, V.G., dotsent

Effect of sodium fluoride on the activity of intestinal enzymes
in sheep. Trudy Kirov. otd. Vses. fiziol. ob-va 1 no.1:94-99 '60.
(MIRA 14:8)

1. Kafedra patologicheskoy anatomii, patfiziologii i farmakologii
Kirovskogo sel'skokhozyaystvennogo instituta.
            (FLUORINE—TOXICOLOGY)   (ENZYMES)
                        (GASTRIC JUICE)

KLIMCHENKO,I.Z.; AKOPUAN,M.M.; MIRONOV,N.P.; KONDRASHEV,V.F.; LOSHITSKIY,
M.N.

Comparative rating of the reliability of various methods of calcu-
lating the suslik population. Trudy probl. i tem.sov. no.5:29-38 '55.
                                                     (MIRA 8:12)
1. Rostovskiy protivochumnyy institut
                      (Susliks)

LOSHKANOV, V., predsedatel'.

Chairmen's seminar. Voen.znan. 29 no.5:12 My '53.   (MLRA 6:6)

1. Khar'kovskiy gorodskoy orgkomitet Vsesoyuznogo dobrovol'nogo obshche-
stva sodeystviya armii, aviatsii i flotu.   (Military education)

Electrodeposition of copper from cuprous chloride solutions. N. P. Diev and A. G. Lushkarev. *J. Applied Chem.* (U. S. S. R.) 12, 585-92(in French, 592-3)(1939). —Perfect cathode deposits of Cu were obtained from Cu₂Cl₂ solns. in the N₂ and air atms. at c. d. of 100-150 amp./sq. m. Even at c. d. up to 400 amp./sq. m. the deposits were satisfactory. An increase of temp. from 30° to 50° or an increase of the amt. of gelatin in the electrolyte above 1.0 g./l. practically had no effect on the appearance of the cathode deposits. In the absence of gelatin, Cu was deposited in the form of coarse loose crystals, whereas in the presence of 0.5-1.0 g./l. gelatin fine crystals strongly attached to the cathode were obtained. The cathode current efficiency was 99% and better. The protection of the electrolyte surface with petrolatum or oil reduced losses due to oxidation of Cu₂Cl₂.   A. A. Podgorny

METALLURGICAL LITERATURE CLASSIFICATION

SHCHERBAKOV, I. G.; LOSHKAREV, M. A. ; LOSHKAREV, A. G.

"The Role of Some Organic Admixtures in the Electrolyte Used in Refining Nickel", Tsvet. Met. 14, No. 9, Sept. 1939.

Report U-1506, 4 Oct. 1951.

Balance of bath potentials for electrolytic production of nickel and cobalt hydroxides. A. G. Lunkharev and L. F. Etienes. *Tsvetnye Metal.*, 1940, No. 5-6, 115-17.—The authors detd. the potential drop in various parts of electrolytic baths for the electrolysis of Ni and Ni-Co mats in

NaCl electrolyte with air agitation. They found that for Ni mat with a voltage of 2.81 v. at the bus bars, the voltage drop is distributed as follows: 11.4% in the electrolyte, 7% in the anodic slime, 2.1 in the contacts and 78.5% in the electrode potentials. The corresponding percentages for Ni-Co mats with a 3.1 voltage drop are: 0.2, 15.4, 4.5 and 70.2.   B. N. Daniloff

Experimental electrolytic refining of copper-nickel anodes at the Ufalei Works (Russia). I. G. Shcherbakov, A. G. Loshkarev and M. A. Loshkarev. *Tsvetnye Metal 1940,* No. 8, 75 N. -Expts. were conducted for several months at the Ufalei nickel works. The av. analysis of the anodes was 85.65% Ni, 0.50% Co, 1.62% Cu and 1.71% Fe. Cathodic Ni conforming to the specification requirements for Ni was obtained by using the following: 40 g. Ni/l. of electrolyte, 15-20 g. H_3BO_3/l., 10 g. NaCl/l.; pH 5 and cathodic c. d. 130 amp./sq. m. Av. results obtained: Current efficiency 94%; energy consumption 2004 kw.-hrs./ton Ni; Scrap 22.8%, slime 7.6%. Elimination of Cu, Fe and Co from the electrolyte does not present any difficulties. 3 references.   H. N. D.

M

10

Kinetics of the Dissolution of Copper and Silver in an Aqueous Solution of Ammonium Persulphate. A. G. Lozhkarov and V. S. Kalevatova (*Zhur. Priklad. Khim.*, 1948, **21**, (9), 954-958).—[In Russian]. The reactions studied are of interest in connection with the recovery of copper from electrolytic slimes. The rates at which copper and silver dissolved in solutions of ammonium persulphate of concentration 0·438, 0·219, and 0·0438 g.-molecule/l. were determined at 20°, 40°, and 60° C. The metals were in the form of plates with an exposed surface of 40 × 30 mm. and were stirred at 2000 r.p.m. in 300 c.c. of solution; periodically samples of the solution were removed from the bath for determining the dissolved copper or silver. Both reactions were found to be of the first order, and the energies of activation were calculated from the velocity constants at 20° and 40° C. That for copper (6530 cal.) agreed well with the heat of diffusion over this range of temp. (~6100 cal.), but no such agreement was found for silver (for which the values were 2004 cal. and ~15,000 cal., respectively). This is due to the formation of a layer of solid silver sulphate on the surface of the metal; at higher temp. and with less conc. solutions agreement is better. With both copper and silver the speed of the reaction is controlled by the speed of the diffusion process.—G. V. E. T.

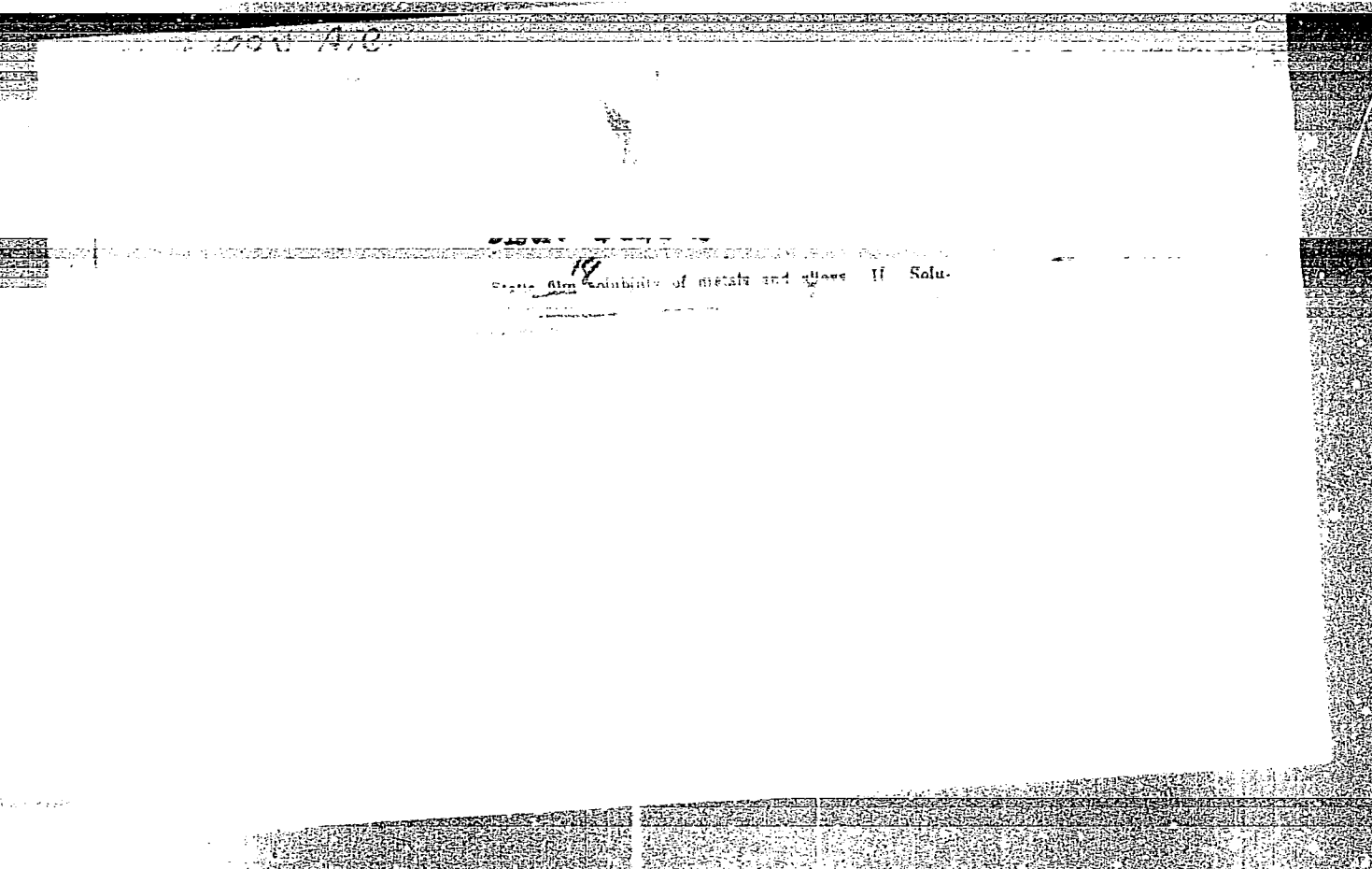*Kiev Lab. of Electrochemistry, Ukr. Industrial Inst.*

Dec. 1950

LOSHKAREV, A.G.; VOZISOV, A.F.

Anodic solution of copper sulfide.   Zhur.Priklad.Khim. 26, 55-62 '53.
(CA 47 no.14:6795 '53)   (MLRA 6:2)

Anodic polarization of nickel sulfide. A. G. Loshkarev and G. V. Loshkareva. *Zhur. Priklad. Khim.* 27, 855–76 (1954).—Anodic potentials, η, of NiS_2 were detd. as a function of c.d., i, up to 22.2 ma./sq. cm. and time up to 40 min. at 25 and 40° in a soln. contg. N $NiCl_2 + 0.25N$ H_3BO_3, pH 5.0. The anode was a compressed cylinder, 7.8 mm. diam., and the cathode was platinized Pt. The electrolyte before and during electrolysis was stirred with H gas. To det. the function of the S film on the anode, the ohmic resistance and the voltage drop, ΔE, of the anode-electrolyte were measured in another cell provided with an auxiliary electrode coated with Ni. Polarization of the anode occurred at low i, and η increased with time as well as with i. Raising the temp. from 25 to 40° resulted in depolarization at i of 1.1–1.5 ma./sq. cm.; with i of 22.2 ma./sq. cm. η continued to increase with time. At 25° and i 5 ma./sq. cm., ΔE was small (0.022 v. after 20–40 min.), but with i of 11.1 and 22.2 ma./sq. cm., ΔE increased to 0.381 and 1.25 v. after 40 min. Accordingly, polarization of NiS_2, which was appreciable with i at 5.5 ma./sq. cm. could not be accounted for by ΔE in the S film. The thermodynamic potential of NiS_2 was estd. as 0.03 v., a negligible magnitude compared with η, even at i of 1.6 ma./sq. cm. (0.815 v. after 1 min.). The high value of η and other characteristics of anodic soly. of NiS_2 could be accounted for by the reaction $2OH^- + 2e^- = H_2O + O_2$, and depolarization by the oxidation of NiS_2 to form Ni^{++}, S, SO_3^{--}, and SO_4^{--}. I. Bencowitz

/ Static film solubility of metals and alloys | Solubility
of copper, iron and lead in nitric acid

in the soln. ... a surface, 1.00 sq. cm., was drilled at one end of a plate,
100 × 80 × 8 mm., and was filled with 0.154 ml. of the sol-
vent. After a given time t the soln. was washed from the
cavity and analyzed. In another series of expts. the poten-
tial φ was detd. by connecting the soln. in the cavity
through a KCl bridge to a satd. HgCl₂ electrode. The amt.
q dissolved was plotted as a function of t for different HNO₃
concns. at 17, 27, and 37° ... Cu, Fe, and
Pb ...

Solubility of metals and alloys II Solu-

AUTHOR: Loshkarev, A. G.

SOV/32-24-8-8/13

TITLE: A Method for Absolute Analysis of Metals and Alloys
(Besstruzhkovyy absolyutnyy metod analiza metallov i splavov)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 8, pp. 939-940
(USSR)

ABSTRACT: The method given here can be used without using standard
samples. The concentration of the main component and of the
admixture is determined, and then the percent composition of
admixture in the alloy is calculated with an appropriate for-
mula. One of the equations given makes it possible to correct
for unknown elements which may be present in the alloy or
admixture and whose concentration is known approximately. Since
no standard is being used the volume of the solution and the
time for dissolution do not have to be determined. Moreover,
the dissolution of the sample can take place under heating,
whereby the analysis is considerably shortened and the choice
of solvent is made easier. Analytical methods were worked out
for carbon in coal, and special steels, aluminum alloys, nickel
and several other metals and alloys. Using this method che-
mical analysis can be carried out on metal layers which are

Card 1/2

A Method for Absolute Analysis of Metals   SOV/52-24-8-8/43
and Alloys

10^{-2} to 10^{-4} mm thick. Phases between crystals in transformer steel and defect and liquidation zones in the unalloyed decanted material from alloyed steel were analysed in this way. The thickness of salt and oxide films on metals and the thickness of single and multiple layers of galvanic platings were determined using this method.
There is 1 figure.

ASSOCIATION: Sverdlovskiy gornyy institut (Sverdlovsk Mining   Institute)

Card 2/2

IOSHKAHEV, A.G.

Chipless solubility of alloys. Zhur. prikl. khim. 31 no.8:1175-1180
Ag '58.   (MIRA 11:10)

1.Sverdlovskiy gornyy institut imeni V.V. Vakhrusheva.
                    (Steel—Analysis)

IOSHKAREV, A.G.

Dissolving magnesium, zinc, tin, and iron in hydrochloric acid in nondestructive analysis. Zhur. prikl. khim. 31 no.10:1493-1497
O '58.   (MIRA 12:1)

1.Sverdlovskiy gornyy institut imeni V.V. Vakhrusheva.
(Metals--Analysis) (Solution chemistry))

LOSHKAREV, A. G. Doc Chem Sci -- (diss) "Study in the field of the chipless method of analysis of metals and alloys." Sverdlovsk, 1959. 28 pp (Min of Higher Education USSR. Ural Polytechnic Inst im S. M. Kirov. Sverdlovsk Mining Inst im V. V. Vakhrushev), 100 copies (KL, 45-59, 143)

18(3), 5(2)

AUTHOR: Loshkarev, A. G.

SOV/126-7-2-34/39

TITLE: The Chemical Nature of the Intercrystalline Phase of Transformer Steel (O khimicheskoy prirode mezhkristallitnoy fazy v transformatornoy stali)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1959, Vol 7, Nr 2, pp 311-312 (USSR)

ABSTRACT: Many scientific investigations have been devoted to the problem of removal of the brittleness of transformer steel, however, the reasons for this brittleness and methods for its removal are as yet unknown. The majority of investigators assume that the brittleness of the steel arises as the result of formation of the cementite phase in the grain boundaries. The metallographic study of sections of transformer steel, using large magnifications, confirms the presence of some phase, which in the form of a thin film coats the steel grains. It is evident that the basis of the whole problem is the chemical composition of this intercrystalline phase. However, the chemical nature of this phase is unknown, as the usual chemical analysis methods are in this case not
Card 1/5 applicable. In order to elucidate the chemical nature of

SOV/126-7-2-34/39

The Chemical Nature of the Intercrystalline Phase of Transformer Steel

the intercrystalline phase of the transformer steel, the author applied a "chip-less" absolute analysis which he had developed himself (Ref 1). The method of investigation consisted of the following. Strips of brittle transformer steel, 30 mm wide and 0.35 mm thick were broken into two. As the brittleness of the metal is caused by the intercrystalline phase, the newly forming fracture surface passes between the steel crystals. In the fracture the intercrystalline phase is revealed. The side surfaces of the plate were isolated by application of glue BF/2, whereas the fracture surface remained free. Then the end of the plate with the fracture surface was placed into a platinum boat, which had previously been filled with dilute (2:3) nitric acid. By means of special experiments it has been established that the metal, protected by a layer of the glue BF-2, is not dissolved by the dilute nitric acid after ten minutes. Only metal from the fracture surface went into the probe. The less time it took to dissolve the metal, the more did

Card 2/5

SOV/126-7-2-34/39

The Chemical Nature of the Intercrystalline Phase of Transformer
Steel

the chemical composition of the probe correspond to the
chemical composition of the intercrystalline phase,
and the greater was the number of plates from which
probes could be taken for investigation. At a solution
time of 5 mins only one plate could be used, at a
solution time of 1 min 10 plates could be taken. Further,
the content of iron, silicon, phosphorus and titanium
was determined in the probe obtained according to the
records of the analysis method (Ref 1). No titanium
was found in the probe. As regards phosphorus, it was
either absent (after short solution time) or present in
the usual quantities, i.e. 0.012-0.018% (when solution
took 5-7 mins). The silicon content increases with
decrease in solution time from 4.8 to 20.0% (see Table).
As shown by the data of the Table, the filing ("chip-less")
probe reproduces the usual mean composition of transformer
steel (4.0-4.5%) on deep etching. Short term etching
transfers the thin alloy layer, which is close in
chemical composition to the composition of the inter-
crystalline phase into the filing ("chipless") probe.

Card 3/5   If it is assumed that silicon in the intercrystalline

SOV/126-7-2-34/39

The Chemical Nature of the Intercrystalline Phase of Transformer
Steel

phase exists in the form of a chemical compound with iron, then the formula Fe_2Si corresponds to a silicon content of the intercrystalline phase of 20% (for a dissolution of 1 min duration). The latter is well confirmed by the Fe-Si equilibrium diagram, which shows the formation of Fe_2Si at a silicon content in the alloy of up to 20%. Thus, the intercrystalline phase of transformer steel consists of iron-silicide, Fe_2Si. It should be underlined that Fe_2Si always forms at a silicon content of up to 20%, but it appears to form an intercrystalline phase, firstly under suitable temperature conditions, and, secondly, the lighter the steel, the greater its silicon content. The authors believe that the main condition for the prevention of the formation of the intercrystalline iron-silicide phase is a suitable heat treatment for the transformer steel, for instance a sufficiently fast cooling of the billets followed by cold rolling into sheets.

Card 4/5

SOV/126-7-2-34/39

The Chemical Nature of the Intercrystalline Phase of Transformer
Steel

There are 1 table and 1 Soviet reference.

(Note: This is a complete translation except for the
Table)

ASSOCIATION: Sverdlovskiy gornyy institut
(Sverdlovsk Mining Institute)

SUBMITTED: December 30, 1957

Card 5/5

LOSHKAREV, A.G.

Potential of self-dissolving metals in a small volume of a solvent.
Izv.vys.ucheb.zav.;khim. i khim.tekh. 3 no.3:422-426 '60. (MIRA 14:9)

1. Sverdlovskiy gornyy institut imeni V.V. Vakhrusheva, kafedra
khimii.
    (Solution (Chemistry)) (Metals) (Electrochemistry)

UMOVA, M.A., kand. tekhn. nauk, dots.; LOSHKAREV, A.G., dots.,
otv. red.

[Heterogeneous equilibrium; lectures for correspondence
students] Geterogennoe ravnovesie; lektsii dlia studentov-
zaochnikov. Sverdlovsk, Izd. Sverdlovskogo gornogo in-ta,
1964. 58 p.   (MIRA 17:11)

1. Zaveduyushchiy kafedroy khimii Sverdlovskogo gornogo
instituta imeni V.V.Vakhrusheva (for Loshkarev).

30243

S/145/60/000/002/011/020
D221/D302

26.2120

AUTHOR: Loshkarev, A.I., Engineer

TITLE: On the problem of profiling the rotor of radial
               turbine

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashino-
               stroyeniye, no. 2, 1960, 111 - 123

TEXT: The relationship between the natural and basic system of
coordinates is given by nine quantities, of which three are inde-
pendent. The author deduces equations for a gas particle, invoking
the principle of continuity of state and thermodynamic. This re-
sults in

$$\frac{R}{k - 1} dT + pd \left(\frac{1}{\rho}\right) = dQ_{ex} + dQ_{f}, \qquad (6)$$

where R is the gas constant referred to a unity of mass; k is the
index of adiabatic; dQ_{ex} and dQ_{f} are elementary amounts of heat ob-
tained by the particles externally and due to friction; ρ is the
density of gas; p is the pressure. After some mathematical elabora-
Card 1/5

30243

S/145/60/000/002/011/020
On the problem of profiling the ...   D221/D302

tions the author obtains the equation of energy of the relative mo-
tion. This allows a deduction of the distribution of speeds along
curvilinear axes n and m, as well as determination of temperature
along each line of flow. The entropy of ideal gas permits calcula-
tion of pressure along the line of flow. The case of whirling flow
is then considered, and linear differential equations of the first
order deduced. The analytical expressions are used for solving di-
rect or inverted problems of three dimensional flow. The author
discusses the reverse problem of profiling the rotor. An assump-
tion is made of the number of streams into which the channel bet-
ween blades is divided (Fig. 2). In addition to factors of gas dy-
namics, strength elements of rotors should also be taken into con-
sideration. The mathematical analysis indicates that when the cur-
vature of flow lines is not zero, then the field of speeds is in-
clined at the meridional plane. In centrifugal compressors it will
be compensated to a certain degree by the opposite flow in clearan-
ce of the front wall, whereas in the case of turbines it results in
additional losses. When helical blades are used, then it is expe-
dient that the latter approaches the rear wall at right angles.

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S/145/60/000/002/011/020
On the problem of profiling the ...   D221/D302

The effect of the form in the mean line of flow on speed distribution in the meridional plane of the rotor in the case of straight radial blades is then considered. Equations concering the above indicate that absolute gradient of pressure increases with the reduction of curvature radius. It is therefore advisable to realize the maximum possible radius in the rotor. The angle of inclination of tangent to this curvature is defined by

$$\Delta \psi = \int_0^l \frac{dl}{R_g} ,$$

where l – the length of the curve. In the considered case $\Delta \psi = \frac{\pi}{2}$, the mean line of flow should be executed along the arc of a circle. The effect of curvature on parameters of flow is shown in the graphs. To obtain uniform speed distribution it is necessary to specify the relative speed w along the mean line of flow somewhat higher at the outlet, as it is practised when profiling rotors in centrifugal compressors. In the case of blades with any shape it is possible to specify the projection of a mean line on the meri-

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On the problem of profiling the ...   D221/D302

dional plane, as is done for straight blades. Finally, the author
discusses the effect of the width, in the rectifying section, on
the distribution of speeds along the blade surface. In the narrow
version there are diffusor sections and greater irregularity of
speed at the exit due to the curvature of its blades. Therefore,
it is advantageous to turn the flow as soon as possible, i.e. to
design this section with maximum width. In the case of sudden chan-
ges of curvature, the curve of speeds has a vertical tangent. There
are 8 figures and 3 non-Soviet-bloc references. The references to
the English-language publications read as follows: Hua Wu Chung, A
general theory of three-dimensional flow in subsonic and superso-
nic turbomachines of axial, radial and mixed flow types, NACA, TN,
no. 2604, 1952; K. Smith and Hamrick, A rapid approximate method
for the design of hub shroud profiles of centrifugal impellers of
given blade shape, NACA, TN, no. 3399, 1955.

ASSOCIATION: MVTU im. Baumana (MVTU im. Bauman)

SUBMITTED: December 15, 1959

Card 1/1

S/145/62/000/002/008/009
D262/D308

/0. /200

AUTHOR: Loshkarev, A.I., Engineer

TITLE: Determining the exit angle of flow from a circular
             radial grating

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroye-
             niye, no. 2, 1962, 147 - 152

TEXT: By applying the conservation laws, the equation defining the
flow exit angle is deduced, taking into account the curvature of
the grating, as shown in Fig. 1. The results of the experiments,
conducted in the laboratory of the MVTU im. Baumann, and recorded in
form of graphs, show that for infrasonic flow velocities the formula
deduced by the author is more accurate than the general one: sin $\alpha_1 = \sqrt{\beta}$

= α_m / t_1. There are 5 figures.

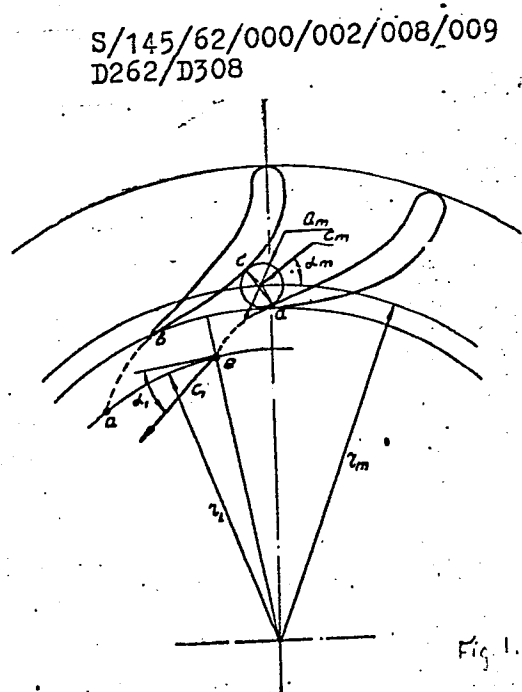ASSOCIATION: MVTU im. N.E. Baumana (MVTU im. Bauman)

SUBMITTED: March 31, 1961

Card 1/2.

Determining the exit angle of ...

Fig. 1: Determination of
the flow angle behind the
radial grating.

Рис. 1. К определению угла потока за радиаль-
ной решеткой

Fig. 1.

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LOSHKAREV, A,I., inzh.

Determining the outlet angle for a flow through a circular radial cascade. Izv.vys.ucheb.zav.; mashinostr. no.2:147-152 '62.

(MIRA 15:5)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche im. Baumana.

(Cascades (Fluid dynamics))

40832

AUTHOR: Loshkarev, A. I.

TITLE: On the hurling of a body by a conductive gas in a magnetic field

PERIODICAL: Moscow Universitet. Vestnik, Seriya 1, Matematika, mehkanika. no. 4, 1962, 75–84

TEXT: A shock tube filled with absolutely conductive compressed gas, and closed at the one end by a piston, is considered, the motion of the piston under the action of the pressure of the compressed gas and of a magnetic field applied in the region of the compressed gas perpendicular to the tube axis is examined in the one-dimensional case. The solution is found by generalizing the solution of the classical gas-dynamical problem (the Lagrange problem) for the case of gas flow in a magnetic field: This is done by replacing the pressure p by the "total" pressure p_m, equal to the sum of the hydrostatic and magnetic pressures: $p_m = p + H^2/8\pi$, and the velocity of sound c by the velocity of propagation c_m of a high-speed magneto-acoustic wave of infinitely small amplitude: $c_m = \sqrt{c^2 \pi (g/\sqrt{4\pi\rho})^2}$. Exact solutions are obtained: 1) for an arbitrary magnetic field and $\gamma = 5/3$, 2) for a strong magnetic field and γ arbitrary. The relationship between the time of acceleration and the attained velocity is established in both cases as a function of the ratio of the magnetic to the hydrostatic pressure. There are 2 figures. The most important English-language reference reads as ollows: Mitchner, M. Magnetohydrodynamic flow in a shock tube. "Phys. Fluids", 2, No 1 1959.

ASSOCIATION: Kafedra volnovoi i gazovoy dinamiki (Chair of wave and gas dynamics)

SUBMITTED: November 11, 1961

Card 1/1

LOSHKAREV, A.I.

The casting of a body by means of a conduction gas in a magnetic
field. Vest. Mosk. un. Ser. 1: Mat.,mekh. 17 no.4:75-84 Jl-Ag
'62.   (MIRA 15:7)

1. Kafedra volnovoy i gazovoy dinamiki Moskovskogo universiteta.
     (Gas dynamics) (Magnetic fields) (Motion)

S/0145/63/000/001/0081/0096

ACCESSION NR: AP3000493

AUTHOR: Loshkarev, A. I. (Engineer)

TITLE: Calculation of centrifugal turbine characteristics

SOURCE: IVUZ. Mashinostroyeniye, no. 1, 1963, 81-96

TOPIC TAGS: turbine characteristic, centrifugal turbine, equivalent one-dimensional turbine, centrifugal gas turbine

ABSTRACT: Based upon the concept of an "equivalent one-dimensional turbine" (e.o.t., in which all gas particles leave at one radius and at the same exit angle), the equations for calculating the characteristics of a centrifugal turbine were derived. The three equations are given as:

$$\frac{1}{4}(\overline{d}_2{}^2 - \overline{d}_s{}^2)\, p_{2\,ef}\, w_{2\,ef} \sin \beta_{2\,ef} = \frac{G}{\pi D_1{}^2 g}\ ,$$

$$w_{2\,ef} \cos \beta_{2\,ef} = \frac{M_{u2} \cdot g}{G \cdot r_{2\,cp}} + \frac{\pi \cdot n}{30} \cdot r_2\ av\ ,$$

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ACCESSION NR: AP3000493

$$(w_{2\,9\phi}\cdot\sin\beta_{2\,9\phi})^2 + p_{2\,9\phi}\frac{gk\,\pi\,(D_2{}^2-D_3{}^2)}{2\,(k-1)\cdot G}\cdot w_{2\,9\phi}\cdot\sin\beta_{2\,9\phi} -$$

$$-2\,g\frac{Rk}{k-1}\,T^{\cdot}_{2\,9\phi} + \frac{M_{n2}\cdot g}{G\cdot r_{3\,cp}} = 0.$$

(where $d_2 = \dfrac{D_2}{D_1}$ and the rest of the nomenclature is the usual turbine nomenclature). The p_{2cf} can be obtained from the adiabatic relation:

$$p_2^{\frac{k-1}{k}}\text{ef} = \frac{\displaystyle\int_{d_s}^{d_j} p_2^{\frac{k-1}{k}}\,\rho_2\,C_{2a}\cdot\bar{r}\cdot d\bar{r}}{\displaystyle\int_{d_s}^{d_j} \rho_2\,C_{2a}\cdot\bar{r}\cdot d\bar{r}}.$$

Based upon these equations and equations for the velocity distribution in the axial

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exit port, the equations for the axial and tangential velocities $C_{2a} = w_2 \times \sin \beta_2$ and $C_{2u} = w_2 \times \cos \beta_2 - U_2$ were derived:

$$C_{2a} = \frac{w_{2av}\, tg\,\beta_{2av}\,\bar{r}_{2av}^2 \sqrt{1 + tg^2\beta_{2av}} - u_1\, tg\,\beta_{2cp} \cdot \bar{r}_{2av}(-\bar{r}^2 + \bar{r}_2{}^2{}_{cp})}{\bar{r}^2 + tg^2\beta_{2cp} \cdot \bar{r}_2{}^2{}_{av}}$$

$$C_{2u} = \frac{w_{2cp} \cdot \bar{r}_{2cp} \cdot \bar{r}\sqrt{1 + tg^2\beta_{2cp}} - u_1\bar{r} \cdot \bar{r}_2{}^2{}_{cp}(1 + tg^2\beta_{2cp})}{\bar{r}^2 + tg^2\beta_{2cp} \cdot \bar{r}_{2av}^2}$$

β_{2ef} was plotted as a function of U_1/C_{2aef} for $\bar{d}_2 = 0.75$, $\bar{d}_3 = 0.25$, $\bar{r}_{2cp} = 0.559$, $\beta_{2av} = 26°$. It was found that β_{2ef} increases from 26°-50° as U_1/C_{2aef} decreases from 7 to 3.5. Based upon the above calculations, the following recommendations are made: in calculating turbine characteristics based upon the e.o.t. model one must consider the change in β_{2ef} over the operating range, particularly when calculating reverse flow characteristics or finding the stall torque. The compressibility of the gas does not effect β_{2ef} significantly at subsonic exit speeds, and

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thus incompressible fluid equations can be used to find the relation between β_{2ef}

and U_1/C_{zaef}. Orig. art. has: 6 figures and 41 formulas.

ASSOCIATION: MVTU im. N. E. Bauman (MVTU)

SUBMITTED: 25Apr62   DATE ACQ: 21Jun63   ENCL: 00

SUB CODE: PR, AI   NO REF SOV: 006   OTHER: 000

Card 4/4

LOSHKAREV, A.I., inzh.; BRYUKHANOV, B.N., inzh.

Some results of the investigation of a centripetal gas
turbine with nozzle control. Izv. vys. ucheb. zav.;
mashinostr. no.2:208-223 '63.   (MIRA 16:8)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche imeni
Baumana.

L 55920-65   EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b)   Pf-4

ACCESSION NR: AP5012438   UR/0281/65/000/002/0134/0146
                                   621.165.55

AUTHOR: Loshkarev, A. L.(Moscow)

TITLE: The theory of erosion wear of the vane system of centripetal turbines

SOURCE: AN SSSR. Izvestiya, Energetika i transport, no. 2, 1965, 134-146

TOPIC TAGS: centripetal turbine wear, gas turbine erosion, turbine gas sus-
pension, particle trajectory, turbine blade wear

ABSTRACT: In most cases, the hot gases passing through a centripetal turbine
contain a suspension of hard particles. Such a situation is most often en-
countered in mobile, open-cycle, gas turbine units which accept the air at near-
ground level. The particles vary greatly in size and mass, index of the
present paper, the motion of such particles through centripetal turbines is
under the assumption that the gas flows in layers at constant height,
the pressure within such a layer is, for all practical purposes, constant,
the working rotor has a large number of infinitely thin radial vanes, and
that the inflow of gas is shockless. The velocity distribution within the
axial gap between the nozzle and the working rotor is the same as for a source.

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L 55920-65
ACCESSION NR: AP5012438

sink combination. Within the working rotor the rotational velocity of the gas
... is equal to that of the rotor at the given point and the radial
... inversely proportional ...

... lee which do not cause erosive wear, and ...
... can help reduce the ...
...las and 6 figures.

...TION: None

SUBMITTED: 30Nov64   ENCL: 00   SUB CODE: PR

... SOV: 003   OTHER: 000

ACCESSION NR: AP5016341

AUTHOR: Loshkarev, A. I.(Moscow)

TITLE: Efficiency of converting the kinetic energy of vapor of conducting liquids upon condensation in an electromagnetic field

SOURCE: AN SSSR. Izvestiya. Energetika i transport no. 7, 1965, ____

TOPIC TAGS: electromagnetic field, liquid metal, electric current, electric energy, ____

ABSTRACT: In line with the possibility of producing electric current with the aid of condensed liquid metal moving at high velocity in a magnetic field, the mechanism and efficiency ____

, with the condensate uniformly drawn off.

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ACCESSION NR: AP5016341

A fixed coordinate system (Fig. 1) was chosen with the z-axis perpen-
dicular to the plate surface and the vapor and liquid velocity vectors lying
in plane. Magnetic field B is directed by fixed electromagnets and
is produced in the liquid-metal layer

also produce the B field the result during the current field
as a result of the potential
fixed electrodes A and B placed at $y = \pm \ell$, where ℓ is the interelec-
tion and ℓ, the thickness of the liquid-metal condensate layer
field
the y-axis, the
layer will be
used by this current will have a single permanent component along